AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of listings.

Listing of Claims:

1. (Currently Amended) A method of generating and displaying a molecule ~~function~~ network ~~comprising a step of a connect search using a database which stores information on biomolecules hierarchized by one or more items including items selected from f group consisting of modification state, active or inactive state, complexation state, and structural change~~ by a computer comprising:

using a database comprising information on biomolecule pairs and information on bio-events which correlates a bio-event to a biomolecule or a biomolecule pair which causes the bio-event, the computer searches information on biomolecule pairs for generating information on contiguous linkages of molecules wherein the number of the linkages is within a designated number, starting the search from a biomolecule designated by a user from biomolecules contained in a first molecule network representing linkages of molecules;

based on the information on biomolecule pairs obtained by the search, the computer generates and displays a second molecule network comprising the first molecule network and information on contiguous linkages of molecules which starts from the biomolecule designated by the user; and

the computer further searches and displays information on bio-events correlated to biomolecules or biomolecule pairs contained in the second molecule network.

2. (Currently Amended) The [[A]] method of ~~generating a molecule-function network comprising a step of a connect search using a biomolecule-linkage database wherein information on a biomolecule pair comprises a condition with which the biomolecule pair is formed~~ claim 1 wherein the information on bio-events comprises information on exaltation, increase, suppression or decrease of a bio-event in response to a quantitative or qualitative change of the biomolecule which causes the bio-event.

3. (Currently Amended) The [[A]] method of ~~generating a molecule-function network comprising a step of a connect search using a pathology-linkage database which stores information on a disease as a grouped and/or hierarchized data item and stores information on correlation between the data items~~ claim 1 wherein:

the database further comprises information on biomolecules hierarchized by one or more items selected from modification state, active or inactive state, and structural change of a biomolecule; and

for the biomolecules contained in the second molecule network, the computer further searches and displays the information on the hierarchized biomolecules.

4. (Currently Amended) The [[A]] method of ~~generating a molecule-function network using a biomolecule-linkage database, comprising a step of a connect search wherein biomolecule pairs are filtered by setting a condition to one or more data items including data items selected from a group consisting of a relation code, a relation-function code, a reliability code, an acting organ and directionality of a biomolecular pair~~ claim 1 wherein:

the database further comprises information on biomolecule pairs wherein a complex of two or more biomolecules is treated as a biomolecule of the biomolecule pair, or information on biomolecule pairs wherein one or more complex-forming biomolecules are treated as one or more biomolecules of the biomolecule pair; and

the computer searches and displays the second molecule network comprising information on a complex of biomolecules.

5. (Currently Amended) The method of claim 1 ~~further comprising a step of scoring the molecule-function network generated by a connect search using a biomolecule-linkage database, based on one or more data items including data items selected from a group consisting of a relation code, a relation-function code, a reliability code, an acting organ and directionality of a biomolecular pair~~ wherein:

the database further comprises disease-related information on relations among two or more data items selected from biological responses, symptoms, syndromes, clinical marker values, complications and biomolecules related to a disease;

using the disease-related information, the computer searches a biomolecule related to a disease, a biological response, a symptom, a syndrome, a clinical marker value or a complication designated by the user; and

the computer generates the second molecule network starting from the biomolecule obtained by the search.

6. (Currently Amended) The [[A]] method of ~~analyzing a disease-related gene using the method of~~ claim 1 wherein:

the database further comprises information on directionality of relation between two molecules constituting a biomolecule pair; and

the computer carries out the search of information on biomolecule pairs based on directionality designated by the user.

7. (Currently Amended) The [[A]] method of ~~analyzing a relation between two or more diseases using the method of~~ claim 1 wherein:

the database further comprises information on directionality of relation between two molecules constituting a biomolecule pair; and

the computer displays the second molecule network with information on directionality of relation of the biomolecule pairs contained in the second molecule network.

8. (Currently Amended) The [[A]] method of ~~presuming a mechanism of action and/or a side effect of a drug molecule by preparing a drug molecule information database and/or a drug molecule-biomolecule linkage database using the method of~~ claim 1 wherein:

the database further comprises one or more data items selected from

a relation code representing a relation between two molecules constituting a biomolecule pair,

a relation-function code representing a phenomenon or a change accompanied by direct binding of two molecules constituting a biomolecule pair,

a reliability code indicating reliability level of information on a biomolecule pair or an experimental method whereupon information on a biomolecule pair is proved,

information on an originating region where a biomolecule is originated,

information on an existing region where a biomolecule is stored after its generation, and

information on an acting region where a biomolecule causes a bio-event; and

the computer carries out the search of information on biomolecule pairs based on one or more data items selected from the data items contained in the database, wherein the one or more data items used for the search are designated by the user.

9. (Currently Amended) The method of ~~claim 2 further comprising a step of scoring the molecule-function network generated by a connect search using a biomolecule-linkage database, based on one or more data items including data items selected from a group consisting of a relation code, a relation-function code, a reliability code, an acting organ and directionality of a biomolecular pair~~ claim 1 wherein:

the database further comprises disease-biomolecule information on correlation between a disease and a biomolecule for which quantitative and/or qualitative fluctuation is observed in the disease;

using the disease-biomolecule information, the computer searches a biomolecule related to a disease designated by the user; and

the computer generates the second molecule network starting from the biomolecule obtained by the search.

10. (Currently Amended) The method of ~~claim 3 further comprising a step of scoring the molecule-function network generated by a connect search using a biomolecule-linkage database, based on one or more data items including data items selected from a group consisting of a relation code, a relation-function code, a reliability code, an acting organ and directionality of a biomolecular pair~~ claim 1 wherein:

the first molecule network is selected by the user from one or more molecule networks comprising a biomolecule, a biomolecule pair, or a drug molecule designated by the user.

11. (Currently Amended) The method of ~~claim 4 further comprising a step of scoring the molecule-function network generated by a connect search using a biomolecule-linkage database, based on one or more data items including data items selected from a group consisting of a~~

~~relation code, a relation-function code, a reliability code, an acting organ and directionality of a biomolecular pair~~ claim 1 wherein the first molecule network is information on linkages of molecules which is obtained by:

using the database comprising information on biomolecule pairs, the computer searches information on biomolecule pairs for generating information on linkages of molecules, starting the search from a biomolecule, a biomolecule pair, or a drug molecule designated by the user; and

based on the information on biomolecule pairs obtained by the search, the computer generates, as the first molecule network, information on linkages of molecules which starts from the biomolecule, the biomolecule pair or the drug molecule designated by the user.

12. (Currently Amended) The [[A]] method of ~~analyzing a disease-related gene using the method of claim 2~~ claim 10 wherein:

the database further comprises information on directionality of relation between two molecules constituting a biomolecule pair; and

based on the information on directionality, the computer further scores one or more molecule networks comprising a biomolecule, a biomolecule pair, or a drug molecule designated by the user.

13. (Currently Amended) The [[A]] method of ~~analyzing a disease-related gene using the method of claim 3~~ claim 12 wherein:

the database further comprises one or more data items selected from

a relation code representing a relation between two molecules constituting a biomolecule pair,

a relation-function code representing a phenomenon or a change accompanied by direct binding of two molecules constituting a biomolecule pair,

a reliability code indicating reliability level of information on a biomolecule pair or an experimental method whereupon information on a biomolecule pair is proved,

information on an originating region where a biomolecule is originated,

information on an existing region where a biomolecule is stored after its generation, and

information on an acting region where a biomolecule causes a bio-event; and

based on one or more data items selected from the data items contained in the database, the computer further scores one or more molecule networks comprising a biomolecule, a biomolecule pair, or a drug molecule designated by the user.

14. (Currently Amended) The [[A]] method of ~~analyzing a disease-related gene using the method of claim 4~~ claim 1 wherein:

the database further comprises information on bio-events which correlates a bio-event to a biomolecule or a biomolecule pair which causes the bio-event; and

the first molecule network is selected by the user from one or more molecule networks comprising a biomolecule or a biomolecule pair correlated with a bio-event designated by the user.

15. (Current Amended) The [[A]] method of ~~analyzing a relation between two or more diseases using the method of claim 2~~ claim 1 wherein the first molecule network is information on linkages of molecules which is obtained by:

using the database comprising information on biomolecule pairs, the computer searches information on biomolecule pairs for generating information on linkages of molecules, starting the search from a biomolecule or a biomolecule pair correlated with a bio-event designated by the user; and

based on the information on biomolecule pairs obtained by the search, the computer generates, as the first molecule network, information on linkages of molecules which starts from the biomolecule or the biomolecule pair correlated with the bio-event designated by the user.

16. (Currently Amended) The [[A]] method of ~~analyzing a relation between two or more diseases using the method of claim 3~~ claim 1 wherein:

the first molecule network is generated by combining two or more different molecule networks based on information on a biomolecule which is common to the molecule networks.

17. (Currently Amended) A method of analyzing ~~a relation between two or more diseases using the method of claim 4~~ information on quantitative or qualitative changes of biomolecules using the method of claim 1.

18. (Currently Amended) A method of ~~presuming a mechanism of action and/or a side effect of a drug molecule by preparing a drug molecule information database and/or a drug molecule-biomolecule linkage database using the method of claim 2~~ analyzing information on gene expression using the method of claim 1.

19. (Currently Amended) A method of ~~presuming a mechanism of action and/or a side effect of a drug molecule by preparing a drug molecule information database and/or a drug molecule-biomolecule linkage database using the method of claim 3~~ analyzing information on protein expression using the method of claim 1.

20. (Currently Amended) A method of presuming a mechanism of ~~action and/or a side effect of a drug molecule by preparing a drug molecule information database and/or a drug molecule-biomolecule linkage database using the method of claim 4~~ a disease using the method of claim 1.

21. (New) A method of presuming a mechanism of action of a drug molecule using the method of claim 1.

22. (New) A method of presuming a target biomolecule for drug development using the method of claim 1.

23. (New) A method of presuming a target biomolecule of a drug molecule or a biomolecule using the method of claim 1.

24. (New) A program for carrying out the method of claim 1.

25. (New) A computer-readable medium which stores the program for carrying out the method of claim 1.